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WHAT IS CLAIMED IS:

1. A method of identifying protein/nucleic acid binding pairs, said method comprising:

5 (a) contacting a molecular beacon array comprising a plurality of distinct molecular beacon probes with a population of target nucleic acids to produce a hybridized molecular beacon array, wherein each distinct probe of said plurality comprises a different probe sequence and all of said probes of said plurality share a common first fluorescent label;

10 (b) contacting said hybridized molecular beacon array with a population of fluorescently labeled proteins to produce a protein bound array, where each member of said population of fluorescently labeled proteins is labeled with a second fluorescent label that makes up a FRET pair with said first fluorescent label; and

15 (c) detecting any FRET generated signals from said array to identify protein/nucleic acid binding pairs on said array.

2. The method according to Claim 1, wherein said method further comprises
20 detecting any fluorescent signal from said hybridized array prior to step (b) to identify target nucleic acids hybridized to said hybridized array.

3. The method according to Claim 1, wherein said method further comprises
25 characterizing the protein of a protein/nucleic acid binding pair identified by said method.

4. The method according to Claim 1, wherein said method further comprises
30 characterizing the protein binding sequence of a nucleic acid of a protein/nucleic acid binding pair identified by said method.

5. The method according to Claim 1, wherein said target nucleic acid and fluorescently labeled protein populations are generated from the same tissue/cellular source.

6. The method according to Claim 1, wherein said target nucleic acid and fluorescently labeled protein populations are generated from different tissue/cellular sources.

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7. The method according to Claim 1, wherein said hybridized array is contacted with two differentially labeled protein populations.

8. The method according to Claim 7, wherein said two differentially labeled protein populations make up a test/control pair.

9. The method according to Claim 8, wherein said two differentially labeled protein populations make up a normal/disease pair.

10. The method according to Claim 1, wherein said molecular beacon array comprises two or more distinct molecular beacon probes that hybridize to the same target nucleic acid, wherein said two or more distinct probes differ from each other by hybridizing to different locations of said target nucleic acid.

11. A system for use in identifying protein/nucleic acid binding pairs, said system comprising:

(a) a molecular beacon array comprising a plurality of distinct molecular beacon probes, wherein each distinct probe of said plurality comprises a different probe sequence and all of said probes of said plurality share a common first fluorescent label;

(b) a labeling reagent for labeling a protein population with a second fluorescent label, wherein said first and second labels make up a FRET pair;

(c) reagents for generating a population of target nucleic acids; and

(d) a fluorescence detector device.

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12. The system according to Claim 11, wherein said molecular beacon array comprises two or more distinct molecular beacon probes that hybridize to the same target nucleic acid, wherein said two or more distinct probes differ from each other by hybridizing to different locations of said target nucleic acid.

13. The system according to Claim 11, wherein said system includes two different labeling reagents for producing two differentially labeled protein populations that are each labeled with a different second fluorescent label that makes up a FRET pair with said first fluorescent label.

14. The system according to Claim 11, wherein said fluorescence detector device is a fluorescent scanner.

15. The system according to Claim 11, wherein said system further comprises reagents necessary for identifying a protein component of an identified protein/nucleic acid binding pair.

16. A kit for use in identifying protein/nucleic acid binding pairs, said kit comprising:

(a) a molecular beacon array comprising a plurality of distinct molecular beacon probes, wherein each distinct probe of said plurality comprises a different probe sequence and all of said probes of said plurality share a common first fluorescent label;

(b) a labeling reagent for labeling a protein population with a second fluorescent label, wherein said first and second labels make up a FRET pair; and

(c) reagents for generating a population of target nucleic acids.

17. The kit according to Claim 16, wherein said molecular beacon array comprises two or more distinct molecular beacon probes that hybridize to the same target nucleic acid, wherein said two or more distinct probes differ from each other by hybridizing to different locations of said target nucleic acid.

18. The kit according to Claim 16, wherein said kit includes two different labeling reagents for producing two differentially labeled protein populations that are each labeled with a different second fluorescent label that makes up a FRET pair with said first fluorescent label.

19. The kit according to Claim 16, wherein said kit further comprises reagents necessary for identifying a protein component of an identified protein/nucleic acid binding pair.

5 20. A substrate comprising a surface having at least one protein/nucleic acid binding pair immobilized thereon, wherein each protein/nucleic acid binding pair comprises:

(a) a molecular beacon probe comprising a first fluorescent label;

(b) an unlabeled target nucleic acid hybridized to said molecular
10 beacon probe; and

(c) a fluorescently labeled protein labeled with a second fluorescent label and bound to said unlabeled target nucleic acid, wherein said second fluorescent label and said first fluorescent label make up a FRET pair.

15 21. The substrate according to Claim 20, wherein said substrate comprises two or more different protein/nucleic acid binding pairs immobilized on said surface.

22. The method according to Claim 1, wherein said method further comprises
20 a data transmission step in which a result from a reading of the array is transmitted from a first location to a second location.

23. The method according to Claim 22, wherein said second location is a remote location.

25 24. A method comprising receiving data representing a result of a reading obtained by the method of Claim 1.

30 25. A method of identifying protein/nucleic acid binding pairs, said method comprising:

(a) contacting a nucleic acid probe array comprising a plurality of distinct probe nucleic acids with a population of target nucleic acids to produce a hybridized array, wherein each distinct probe nucleic acid of said plurality comprises a different probe sequence;

(b) contacting said hybridized array with a population of labeled proteins to produce a protein bound array; and

(c) detecting any surface bound protein/target nucleic acid complexes to identify protein/nucleic acid binding pairs on said array.

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26. The method according to Claim 25, wherein said labeled proteins are labeled with a first fluorescent label.

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27. The method according to Claim 26, wherein said target nucleic acids are labeled with a second fluorescent label, wherein said first and second fluorescent labels make up a FRET pair.

28. The method according to Claim 25, wherein said labeled proteins are labeled with an indirectly detectable label.

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29. The method according to Claim 25, wherein said method further comprises contacting said hybridized array with a second population of labeled proteins that are distinguishably labeled from said first population of labeled proteins.